

Rhysacephala masneri sp. n. (Xiphydriidae), the first symphytan wasp recorded from Lord Howe Island

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Abstract

Rhysacephala masneri sp. n. (Hymenoptera, Xiphydriidae), the first symphytan recorded from Lord Howe Island is described. Xiphydriid woodwasps are rarely collected in Australasia and the distribution of *Rhysacephala*, which is known from only seven described species from eastern Australia, New Guinea and New Caledonia, is significantly extended. We also discuss putative relationships among Australasian members of the genus.

Keywords

Rhysacephala, Xiphydriidae, Symphyta, woodwasp, oceanic island, Lord Howe Island

Introduction

Lord Howe Island, located approximately 770 km east of Australia and 1,350 km north-west of New Zealand on the submerged Lord Howe Rise (31°33'20"S, 159°05'20"E) (Fig. 1), has captured the imagination of biologists for many decades. Apart from being one of the most picturesque islands in the south-west Pacific, Lord Howe is a true oceanic island (a 6.9 million-year-old extinct shield volcano; McDougall et al. 1981) and, because of its distance from surrounding continental landmasses, it has high levels of plant and invertebrate



Figure 1. Map showing the location of Lord Howe Island and Lord Howe Rise in relation to the Australian mainland and New Zealand (ex Google Earth – accessed Feb 2009).

endemicity (Cassis et al. 2003). Further, it has significant flora/habitat heterogeneity for its 14.6 km² area (Pickard 1983), largely because of the vertical relief provided by Mount Lidgbird (777 m) and Mount Gower (875 m) at the south end of the island.

Although numerous invertebrate surveys have been undertaken of the island over the last 50 years or so, the most comprehensive of which was run by the Australian Museum (Cassis et al. 2003), no sawflies (Symphyta) have previously been recorded, even though numerous species, particularly members of the mostly southern hemisphere family Pergidae, are found on the adjacent Australian mainland. Much rarer in Australasia are species of the worldwide family Xiphydriidae (except Africa; Smith 1978). They are represented in the region by only 11 described species in two subfamilies, Derecyrtinae and Xiphydriinae. Derecyrtinae are confined to South America except for *Austrocyrta* Riek from Australia (Riek 1955; Smith 1978; Jennings et al. 2007; 2009b). Xiphydriinae are worldwide in distribution (Smith 1978) and, in Australasia, there are nine described species; *Rhysacephala leai* (Forsius), *R. obtusiventris* (Rohwer), *R. wilsoni* Benson and *R. warraensis* Jennings and Austin from Australia (Smith 1978; Jennings et al. 2009a), *R. testacea* (Mocsáry) from Papua New Guinea, *R. rufipes* (Smith) from the Aru Islands, Indonesia (Smith 1978), *R. novacaledonicus* Jennings & Austin (Jennings et al. 2007) from New Caledonia, and *Moaxiphia deceptus* (Smith) and *M. duniana* (Gourlay) from New Zealand (Smith 1978).

Xiphydriid larvae are woodborers, have only vestigial legs (Smith 1978) and, in the Northern Hemisphere, develop in the wood of angiosperms, usually in small branches of deciduous trees such as Aceraceae, Betulaceae, Salicaceae and Ulmaceae (Smith,

1978; Gauld and Bolton 1996; Smith and Schiff 2001), where they depend on symbiotic fungi in their tunnels. Very little is known about the biology of the Australian xiphydriid fauna, although *R. warraensis* has recently been reared from a log of *Anodopetalum biglandulosum* (Cunoniaceae) in Tasmania (Jennings et al. 2009a). In New Zealand, the larvae of *M. deceptus* bore in twigs of the evergreen shrub *Coprosma robusta* (Rubiaceae), and the larvae of *M. duniana* bore in twigs of the evergreen southern beeches *Nothofagus fusca* and *N. menziesii* (Fagaceae) (Valentine and Walker 1991).

Here we describe a new species of *Rhysacephala* from Lord Howe Island, the first record of a symphytan from the island. We also have much pleasure in describing this species after Lubomír Masner on the occasion of his 75th birthday.

Methods, terminology and abbreviations

The specimen was examined and imaged under a Nikon DXM1200 stereomicroscope using Automontage software. Morphological terms generally follow Huber and Sharkey (1993), and terms for surface sculpturing follow Harris (1979). Collection abbreviation: ASCU – NSW Agricultural Scientific Collections Unit, Orange, New South Wales.

Systematics

Jennings et al. (2007) recently provided a discussion of and key to the xiphydriid genera of Australasia.

Rhysacephala masneri sp. n.

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Figs 1–4

Type material: Holotype: female “Lord Howe Island, NSW. 18 Sept 1991. G.R. Brown”. ASCU – ASCT00026221.

Etymology. *Rhysacephala masneri* is named in honour of Lubomír Masner from the Canadian National Collection of Insects who is the world authority on the systematics of the parasitic wasp superfamilies Platygastroidea and ‘Proctotrupoidea’ s.l.

Diagnosis. Medium-sized species with head and antennae entirely black, 22 antennomeres, thorax and abdomen brown.

Description. Female: Length 7.7 mm.

Colour. Head black, thorax and abdomen brown, antennae black, legs light brown; fore and hind wings infusate.

Head. $1.34 \times$ as wide as long when viewed dorsally (Fig. 3); face and frons rugose, reticulate microsculpturing; vertex and gena reticulate; occipital carina narrow, almost absent medially; mandibles with 2 teeth; 22 antennomeres, scape $1.7 \times$ length pedicel, first flagellomere $1.1 \times$ length scape, $1.35 \times$ as long as second flagellomere.

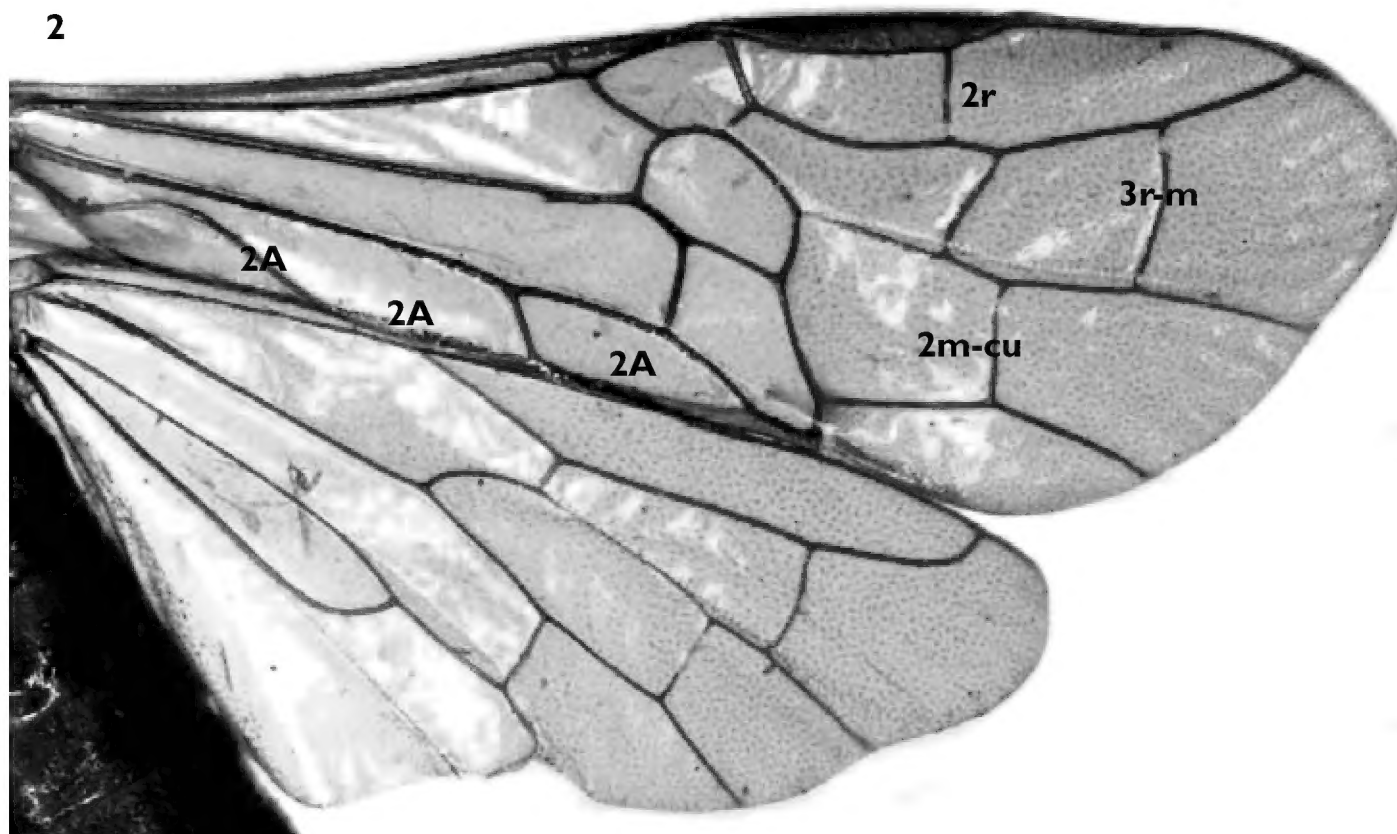
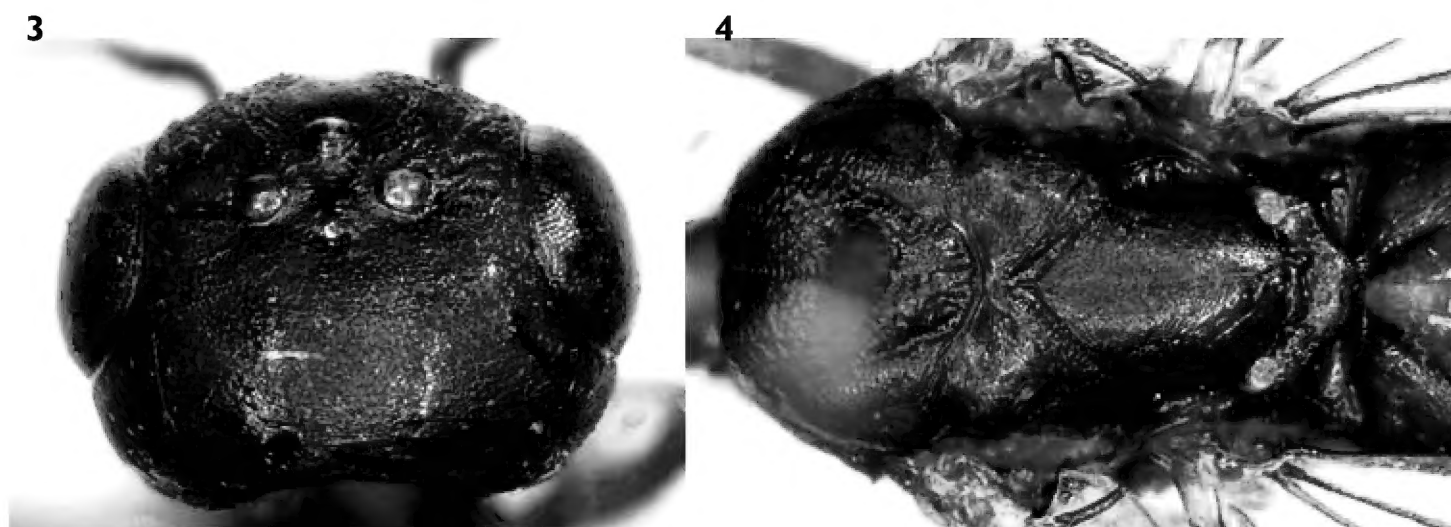


Figure 2. Right hand wings of *R. masneri*, holotype female. Fore wing 5.8 mm and hind wing 4.5 mm in length.



Figures 3–4. Dorsal head and thorax of *R. masneri*, holotype female. Head 1.2 mm in width; thorax 1.9 mm in length.

Thorax. Mesoscutum and metascutellum with reticulate microsculpturing, mesoscutum rugulose medially (Fig. 4); metapostnotum and mesepisternum with reticulate microsculpturing; mesepimeron broad, carinate; hind femur $0.7 \times$ length hind tibia; tibiae with two apical spurs, although inner one very short on fore tibia; basitarsus slightly longer than remaining segments combined.

Wings. Fore wing 5.8 mm in length (Fig. 2), vein 2A becoming paler toward apex of vein, not reaching wing margin; hind wing 4.5 mm in length (Fig. 2), with 10 hamuli. Abdomen $2.2 \times$ length thorax.

Male Unknown.

Remarks: This species lacks a prominent tubercle near the apex of the scutellum (Fig. 4) clearly placing it in the Xiphydriinae. It also has tarsal pulvilli which are absent in most Derycertinae (Benson 1954; Smith 1988).

Benson (1954) distinguished *Rhysacephala* from other Xiphydriinae by the presence of 7-segmented maxillary palps, the “fading out” of fore wing vein 2A (both character states shared with the New Zealand *Moaxiphia*) and several other character states which distinguish it from *Moaxiphia*, including parallel inner orbits of the eye and enlarged hind claws of female. Jennings et al. (2007) expanded the generic limits of *Rhysacephala* to accommodate *R. novacaledonicus* from New Caledonia which has the fore wing vein 2A even in colouration. This species exhibits the general characteristics of *Rhysacephala*; the inner orbits of the eyes are more or less parallel, maxillary palps 7-segmented and, as in the majority of *Rhysacephala*, fore wing vein 2A becomes pale towards the apex of the vein and does not reach the wing margin.

Rhysacephala masneri differs in colouration to all of the described species from Australia and New Caledonia. The head is entirely black as is the case for both *R. wilsoni* and *R. obtusiventris*. However, for both *R. leai* and *R. novacaledonicus* the head is black with a broad yellow stripe on the face, frons and gena near the margin of the eyes. In *R. masneri*, both the thorax and abdomen are brown, whereas in *R. leai* both the thorax and abdomen are pale reddish brown; in *R. wilsoni* the thorax is black and abdomen reddish brown, and in *R. obtusiventris* and *R. novacaledonicus* the thorax and abdomen are both black. *Rhysacephala masneri* is similar in length to *R. novacaledonicus*, but is intermediate in length to the Australian species; *R. leai* and *R. wilsoni* are both 9–10 mm long and *R. obtusiventris* is 5 mm long.

Distribution and occurrence: *Rhysacephala masneri* is known only from Lord Howe Island (Fig. 1). Nothing is known of its biology. We speculate that, given the recent origin of Lord Howe Island, it is likely that this species is derived from the Australian fauna; less likely is a New Caledonia origin.

Interestingly, *R. masneri* has not been recorded in the most detailed invertebrate survey of Lord Howe Island (Cassis et al. 2003). It may, for example, occur in a restricted habitat on the island and, if this habitat has not been sampled, then it may escape capture. The sampling methods used by Cassis et al. (2003) included pitfalls, litter and moss extraction, vegetation beating and hand collecting. These are probably not effective in collecting sawflies, or for that matter a broad range of Hymenoptera. The inclusion of other trapping techniques such as malaise traps and yellow pan traps in any future sampling regime might be appropriate. As well, adult sawflies are probably not long-lived and may easily be missed unless there is almost continuous sampling.

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